

REMARKS

By this amendment, claims 1-8 and 13-20 have been revised to place this application in condition for allowance. Currently, claims 1-8 and 13-20 are before the Examiner for consideration on their merits.

The issues raised in the office action are addressed below under their respective headings.

Claim Rejection - 35USC 112, first paragraph

In review, Claims 1-8 and 13-20 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. The claims are alleged to contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

With respect to the added recitation "a yield strength of the steel after cooling by quenching or air cooling in the final treatment after final heating at a temperature of the Ac3 point or more is not less than 815MPa, wherein the final heating includes hot working in case that the reheating to a temperature of Ac3 point or more and subsequent cooling is not conducted" in claims 1-8 and 13-20, the Examiner notes that Table 2 discloses steel alloys that have a yield strength below 815MPa. The Examiner concludes that there is no support for the recitation "a yield strength of the steel after cooling by quenching or air cooling in the final treatment after final heating at a temperature of the Ac3 point or more is not less than 815MPa,". Additionally, the

Examiner notes that the specification does not provide support for the recitation "wherein the final heating includes hot working in case that the reheating to a temperature of Ac3 point or more and subsequent cooling is not conducted".

Applicants submit that the Examiner has erred in making this rejection. In the rejection, the Examiner points to Table 2 to identify a steel with a yield strength below 815 MPa.

The YS value of 815 MPa in the claim limitation at issue, i.e., 815 MPa or more, is based on the YS value of Inventive Example No. 13 presented in Table 2 of the specification, in which the manufacturing process was finalized by water-quenching. Therefore, if the Examiner is saying that Applicants' specification does not support a value of 815 MPa, such a position is erroneous.

The Examiner's assertion may be based on the fact that Inventive Example No. 14 presents a YS value of 813MPa which is less than 815MPa. However, it should be first noted that the processing of Inventive Example Nos. 13 and 14 are not the same. Inventive Example No. 14 is finally low-temperature-tempered, and hence the YS value of Inventive Example No. 14 after air cooling (and before tempering) is unknown (it is not reported) so that Inventive Example No. 14 cannot be used against Applicants to say that a minimum of 815 MPa is not taught in the original specification.

Furthermore, Applicants are entitled to delimit the scope of his invention at their discretion as long as the scope (or the upper limit or the lower limit of the claimed range) is supported by the specification, even if the YS value of Inventive Example No. 14 is one as quenched or air cooled.

Therefore, Applicants submit that the recitation of a yield strength of not less than 815 MPa or 815 MPa or more is not new matter and the rejection based on 35 USC §112, first paragraph, should be withdrawn.

Claim Rejection - 35USC 112, second paragraph

Claims 1-8 and 13-20 stand rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With respect to the added recitation "a yield strength of the steel after cooling by quenching or air cooling in the final treatment after final heating at a temperature of the Ac3 point or more is not less than 815MPa, wherein the final heating includes hot working in case that the reheating to a temperature of Ac3 point or more and subsequent cooling is not conducted" in claims 1-8 and 13-20, the Examiner notes that the claims define no upper limit for the yield strength and therefore the scope of the claim is indefinite.

Applicants traverse this rejection on the grounds that open ended language such as "more than" or "not less than" is not per se indefinite as is alleged in the rejection. The test for indefiniteness is based not only on the claim language but how that language would be understood when considering the written specification by one of skill in the art.

This is confirmed when considering the claim language found in United States Patent Nos. 7,887,924, 7,767,037, 7,608,156, 7,601,231, 7,591,977, and 7,527,700. These patents are only a sampling, but they are evidence that claims with ranges that

lack either an upper limit or a lower limit have been passed onto issuance. Therefore, the Examiner's position that Applicants are not entitled to claim an open ended range for yield strength is not consistent with the general claiming practice permitted by the USPTO. Thus, the rejection in this regard should be withdrawn.

Additionally, the Examiner notes that the specification does not provide support for the recitation "wherein the final heating includes hot working in case that the reheating to a temperature of Ac3 point or more and subsequent cooling is not conducted". The Examiner's opinion is now moot because the Applicants have deleted the recitation "wherein the final heating includes hot working in case that the reheating to a temperature of Ac3 point or more and subsequent cooling is not conducted" from the claims.

Based on the above, the rejection of the claims under 35 USC §112, second paragraph, should be withdrawn.

Claim rejection under 35 USC §103

The Examiner continues to allege that claims 5-8 and 17-20 are obvious under 35 USC §103 based on JP 11 310823 to Oka et al. (Oka). One basis for the rejection is that the amounts of C, Si, Mn, P, S, Cr, Ni, Al, N, Cu Mo, Ti, and Ca of the martensitic stainless steel alloy disclosed by Oka overlap the composition of the instant invention, thus establishing obviousness with respect to the composition.

With respect to the hardness of steel and the amount of grain boundary carbides, Oka discloses a substantially similar composition in addition to hot rolling at

the Ac3, followed by cooling at a rate at least equal to air velocity, followed by tempering at a temperature not higher than Ac1 point. With substantial similarity in composition and processing, the Examiner takes the position that the claimed features of hardness, grain boundary carbides, etc. would be expected to be present.

With respect to the added recitation "a yield strength of the steel after cooling by quenching or air cooling in the final treatment after final heating at a temperature of the Ac3 point or more is not less than 815MPa, wherein the final heating includes hot working in case that the reheating to a temperature of Ac3 point or more and subsequent cooling is not conducted", the Examiner alleges that Oka teaches heating up to a temperature between Ac1 and Ac3 point and then tempering at a temperature not higher than Ac1 point and a yield strength that exceeds 650MPa, and this meets the claim limitation concerning the processing.

Applicant has amended the claims to make it clear that the inventive martensitic stainless steel has a yield strength (yield strength of a final product) is 815MPa or more.

Consequently, the martensitic stainless steel of the present invention has (1) a yield strength of the final product [yield strength A, hereinafter] of 815 MPa or more, and (2) a yield strength [yield strength B, hereinafter] of the steel after cooling by quenching or air cooling in a final treatment after final heating at a temperature of the Ac3 point or more is not less than 815MPa. Needless to say, "yield strength B" does not necessarily equal "yield strength A".

The amendment is based on Inventive Example No. 13, whose yield strength A is 815MPa, though its yield strength B is also 815MPa.

Oka aims at a manufacturing method for a martensitic stainless steel pipe having a yield strength of 650MPa or more, but the maximum YS value among the inventive examples of Oka is 725MPa (Example No. 3 of Oka), which is far lower than 815MPa. In other words, the inventive steel is explicitly distinguishable from the steel of Oka.

The Examiner is of the opinion that the claimed features would be expected due to a substantially similar composition and process. However, the Examiner's opinion is erroneous. At least, the manufacturing process of Oka is different from that of the present invention. The process of Oka necessarily includes a heat treatment in the austenite-ferrite dual phase temperature region, whereas the process of the present invention does not include a heat treatment in the dual phase temperature region. As a result of difference in manufacturing process, the steel of present invention and the steel of Oka are different in yield strength as a final product as mentioned above, and also in grain boundary carbides.

To recap, the missing limitations of the rejected claims cannot be assumed to be present in Oka since the processing of Oka is not the same as used to obtain the claimed yield strength, hardness, and grain boundary carbides. Particularly, there is no basis for the Examiner to conclude that the claimed yield strength in the final product can be obtained by Oka given that Oka does not disclose alloys of comparable yield strength.

Summary

The rejections based on 35 USC §112, first and second paragraphs, are overcome by the revisions to the claims and the arguments made above. The rejection based on Oka is also overcome on the grounds that a prima facie case of obviousness has not been established. More particularly, the Examiner has erred by assuming that the yield strength, hardness, and grain boundary carbides are present because of substantial similarities in the processing of Oka and the invention. This position is improper for the simple reason that the limitations concerning the yield strength, hardness, and carbide volume percent cannot be assumed to be present since the manner in which the alloy is made in Oka is entirely different from that of the invention. This means that the position of inherency with respect to the missing limitations cannot be legitimately taken and the rejection under 35 USC §103 should be withdrawn.

In light of this response, the Examiner is respectfully requested to examine this application in light of this amendment, and pass claims 1-8 and 13-20 onto issuance.

If the Examiner believes that a further interview with Applicants' attorney would be helpful in expediting prosecution of this application, the Examiner is respectfully requested to telephone the undersigned at 202-835-1753.

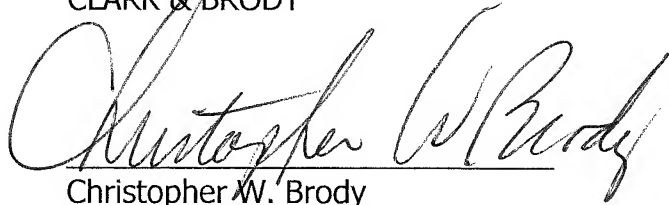
Again, reconsideration and allowance of this application is respectfully requested.

The above constitutes a complete response to all issues raised in the outstanding Office Action.

A petition for a one month extension of time is made. Please charge the fee of \$130.00 to Deposit Account No. 50-1088.

Please charge any fee deficiency or credit any overpayment to Deposit Account
No. 50-1088.

Respectfully submitted,
CLARK & BRODY

A handwritten signature in cursive script, reading "Christopher W. Brody", written over a horizontal line.

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